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Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

Claim 1 (canceled).

2. (currently amended) The surface-emission laser diode as claimed in claim [[1]] 4, characterized in that at least a lower spacer layer and an upper spacer layer contains In.

3. (currently amended) The surface-emission laser diode as claimed in claim [[1]] 4, characterized in that, in said second lower reflector, said low refractive index layer and said high refractive index layer are repeated by 10 pairs or less.

4. (currently amended) [[The]] A surface-emission laser diode ~~as claimed in claim 1~~, characterized by:

a semiconductor substrate;

a cavity region formed over said semiconductor substrate, said cavity region comprising: an active layer structural part including at least one quantum well active layer producing a laser light and a barrier layer; and a spacer layer provided in a vicinity of said active layer structural part, said spacer layer comprising at least one material; and

an upper reflector and a lower reflector provided over said semiconductor substrate respectively at a top part and a bottom part of said cavity region,

said cavity region, said upper reflector and said lower reflector forming a mesa structure

over said semiconductor substrate,

said upper reflector and said lower reflector constituting a semiconductor distributed Bragg reflector having a periodic change of refractive index and reflecting an incident light by interference of optical waves,

at least a part of said semiconductor distributed Bragg reflector being formed of a layer of small refractive index of $Al_xGa_{1-x}As$ ($0<x\leq1$) and a layer of large refractive index of $Al_yGa_{1-y}As$ ($0\leq y<x\leq1$),

said lower reflector being formed of a first lower reflector having a low-refractive index layer of AlAs and a second lower reflector formed on said first lower reflector, said second lower reflector having a low-refractive index layer of AlGaAs,

wherein any one layer constituting said cavity region contains In, and

~~in that~~ a part of said spacer layer comprises $(Al_aGa_{1-a})_bIn_{1-b}P$ ($0<a\leq1$, $0\leq b\leq1$), said quantum well active layer comprises $Ga_cIn_{1-c}P_dAs_{1-d}$ ($0\leq c\leq1$, $0\leq d<1$), and said barrier layer comprises $Ga_eIn_{1-e}P_fAs_{1-f}$ ($0\leq e\leq1$, $0\leq f\leq1$).

5. (original) The surface-emission laser diode as claimed in claim 4, characterized in that said quantum well active layer has a compressive strain.

6. (original) The surface-emission laser diode as claimed in claim 5, characterized in that said barrier layer has a tensile strain.

7. (original) The surface-emission laser diode as claimed in claim 4, characterized in that said semiconductor substrate comprises a (100) GaAs substrate having a surface orientation

inclined in a direction of a (111)A surface with an angle in a range of 5° to 20°.

8. (original) The surface-emission laser diode as claimed in claim 4, characterized in that said surface-emission laser diode has an oscillation wavelength of about 680nm or longer.

9. (original) The surface-emission laser diode as claimed in claim 5, characterized in that said semiconductor substrate comprises a (100) GaAs substrate having a surface orientation inclined in a direction of a (111)A surface by an angle in a range of 5° to 20°.

10. (original) The surface-emission laser diode as claimed in claim 5, characterized in that said surface-emission laser diode has an oscillation wavelength of about 680nm or longer.

Claims 11-35 (canceled).